West Virginia Bureau for Public Health

Your Health
Your Safety
Our Purpose

Department of Health & Human Resources

Influenza 101

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Influenza Coordinator

Objectives

- Brief overview of influenza
- Review of DIDE Website
  - Data and data sources
  - Tools
- Review the 2009-2010 influenza season and update the 2010-2011 season in West Virginia by evaluating laboratory results and other data
- Provide information and guidance on the recruitment and retention of sentinel providers, as well as ways in which influenza-like illness (ILI) reporting and outbreak response can be improved

Uncomplicated Influenza

An acute viral disease of the respiratory tract characterized by abrupt onset of fever, cough (usually dry), headache, body aches and sore throat

Generally resolves in 3-7 days but cough can last 2 or more weeks

Imposes a substantial health burden on all age groups, but highest risk of complications occur among children less than 2 and adults older than 64

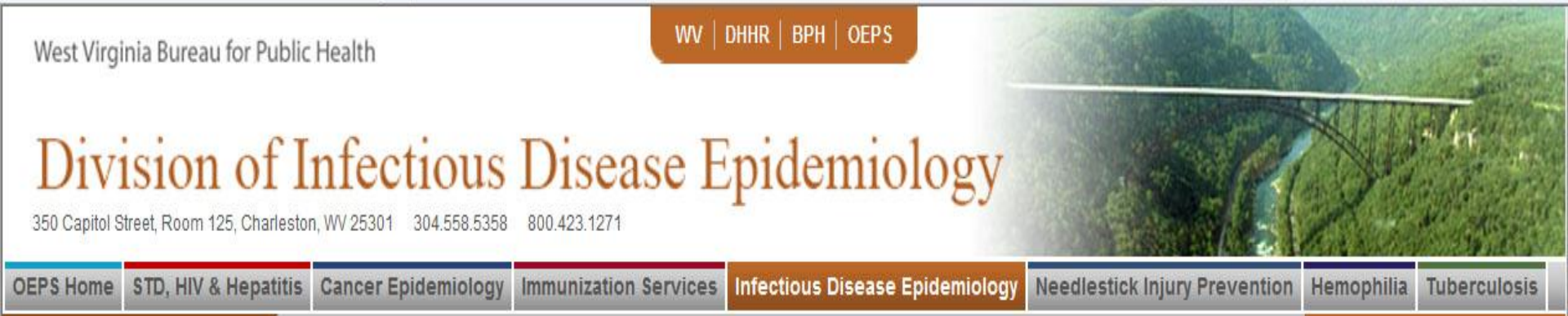
Antiviral Agents For The Treatment And Chemoprophylaxis Of Influenza: Recommendations of the Advisory Committee on Immunization Practices (ACIP).MMWR Morbidity and Mortality Weekly Report. Recommendations and Reports. January 21, 2011. 60:1.

Influenza

- Derives its importance from the rapidity with which epidemics evolve
- Widespread morbidity
- Seriousness of complications notably viral and bacterial pneumonias
- During major epidemics severe illness and death occur primarily among the elderly and those with chronic conditions

Chin, J. (2000) Control of Communicable Diseases Manual, 19th Edition. APHA Washington, DC

DIDE Website

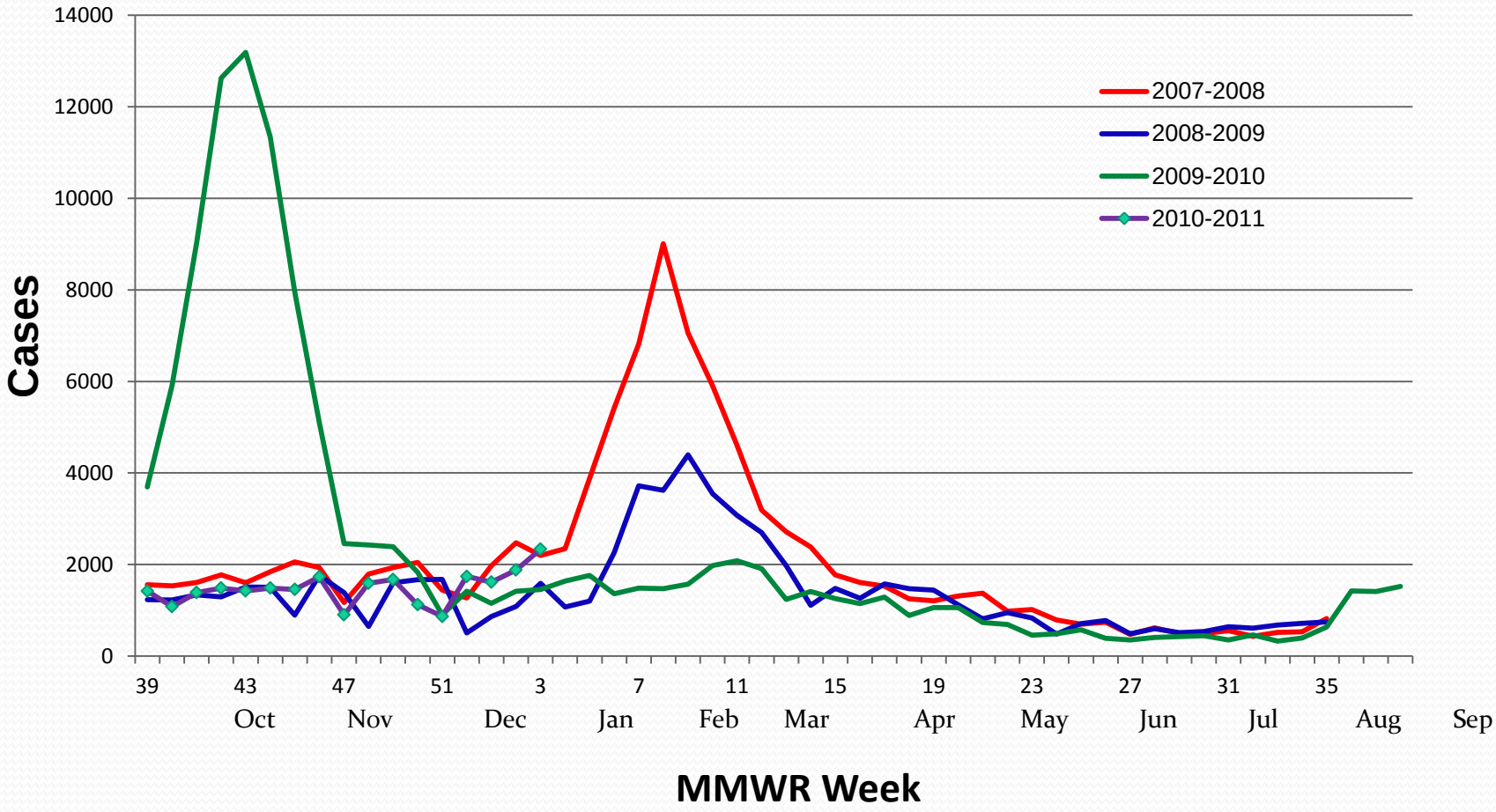


Statewide Temporal Trend of Influenza-Like Illness by MMWR Week

- Graphed by season from 2007-08 to current season
- Displays the number of influenza-like illness (ILI) cases reported
- The Centers for Disease Control and Prevention compiles weekly data and reports the data by "MMWR week.“

REPORTED INFLUENZA-LIKE ILLNESS

West Virginia, 2007-2008, 2008-2009, 2009-2010, 2010-2011



Influenza-Like Illness & Chickenpox
Weekly Reporting Form

West Virginia Division of Surveillance and Disease Control
Infectious Disease Epidemiology Program
Phone: (304) 558-5358
Fax: (304) 558-8736

Local Health Department _____

Week ending _____ **Contact:** _____

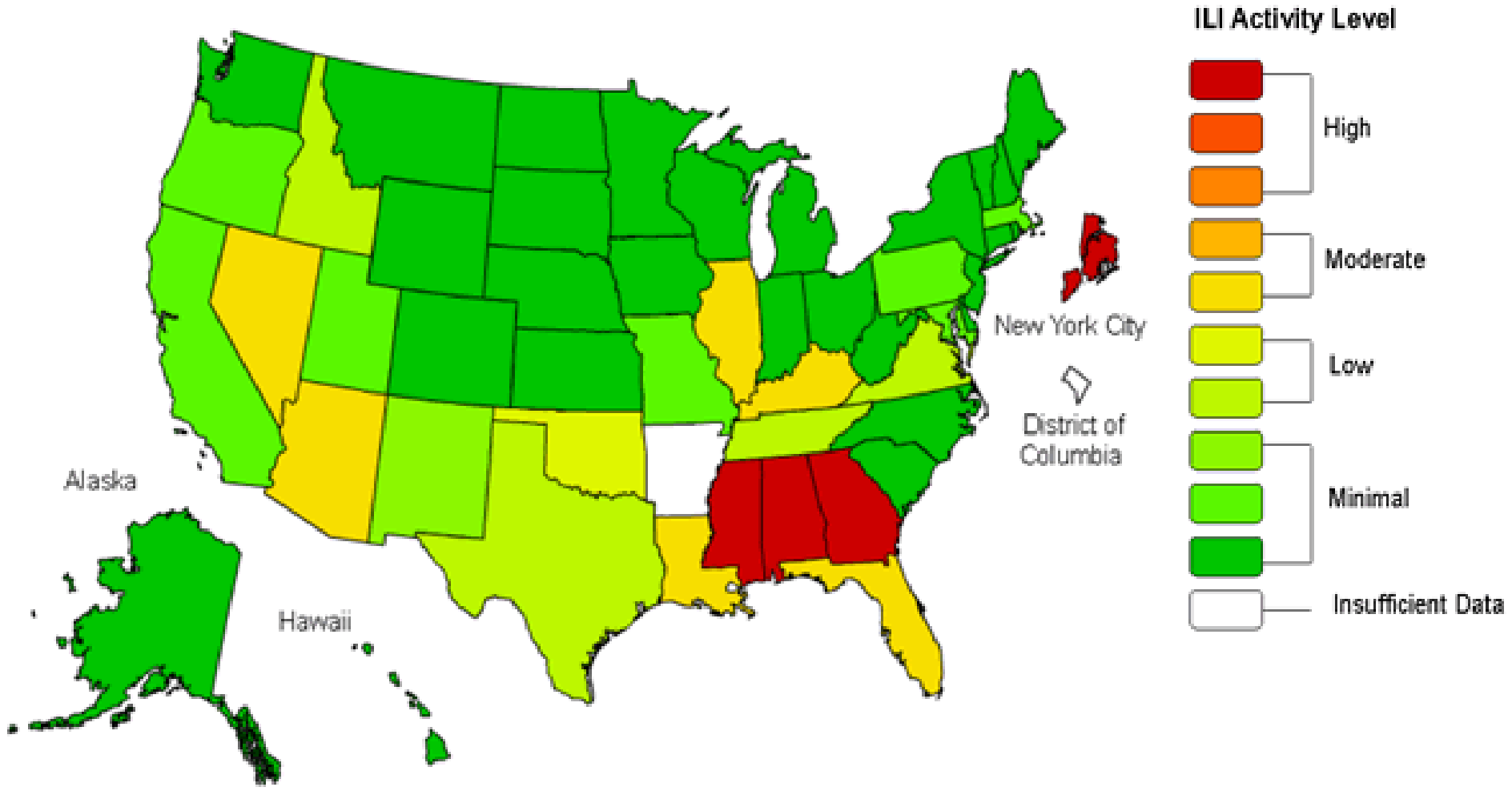
Syndrome	Number of Cases	Number of Providers Reporting
Chickenpox		
Influenza-like Illness		

ILI is defined as fever ≥ 100˚F **and** cough and/ or sore throat without another identified cause.

Report aggregate total ILI for the county weekly (Sunday to Saturday) and fax to DIDE 304-558-8736 by close of business Monday weekly

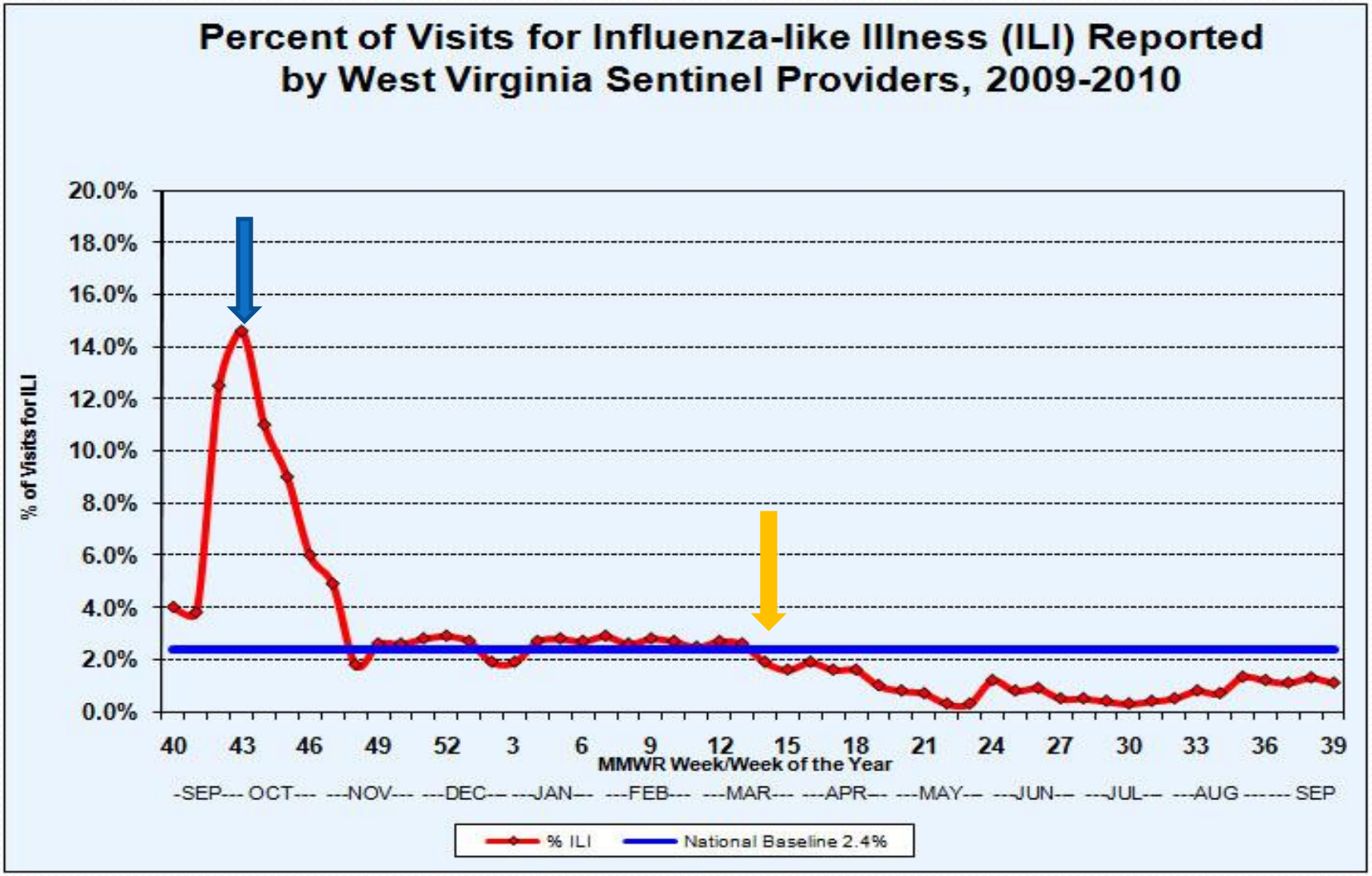
Influenza-Like Illness (ILI) Activity Level Indicator Determined by Data Reported to ILInet

2010-11 Influenza Season Week 51 ending Dec 25, 2010

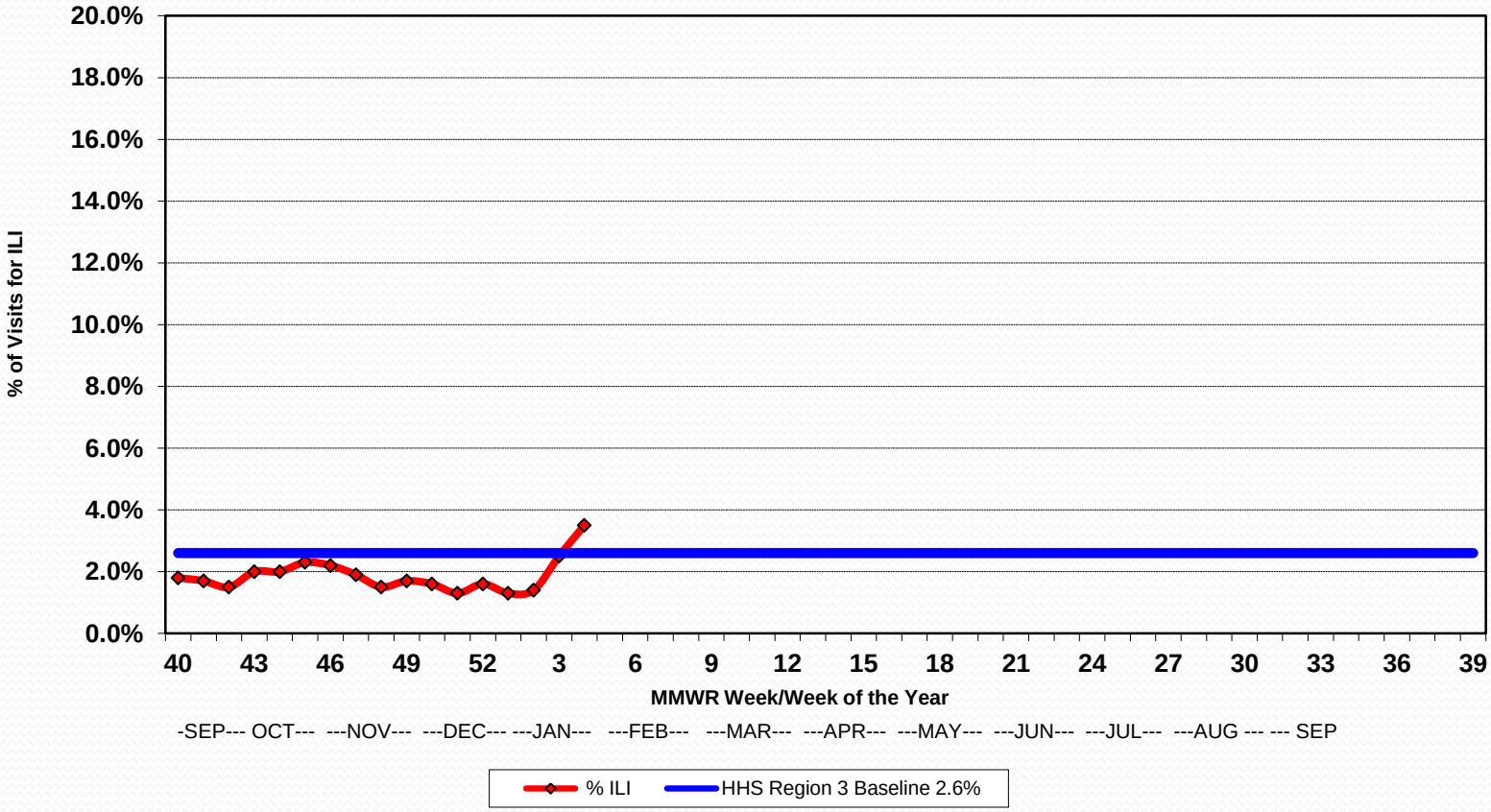


West Virginia Sentinel Provider Data

- The graph demonstrates the percent of visits for influenza-like illness (ILI) reported by West Virginia sentinel providers during the 2010-11 influenza season.
- Sentinel providers volunteer to report cases of ILI as a proportion of total patients seen.


Percent of Visits for Influenza-like Illness (ILI) Reported by West Virginia Sentinel Providers, 2009-2010
% of Visits for ILI
20.0%
18.0%
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
40 43 46 49 52 3 6 9 12 15 18 21 24 27 30 33 36 39
MMWR Week/Week of the Year
-SEP--- OCT--- ---NOV--- ---DEC--- ---JAN--- ---FEB--- ---MAR--- ---APR--- ---MAY--- ---JUN--- ---JUL--- ---AUG ------ SEP
% ILI
National Baseline 2.4%

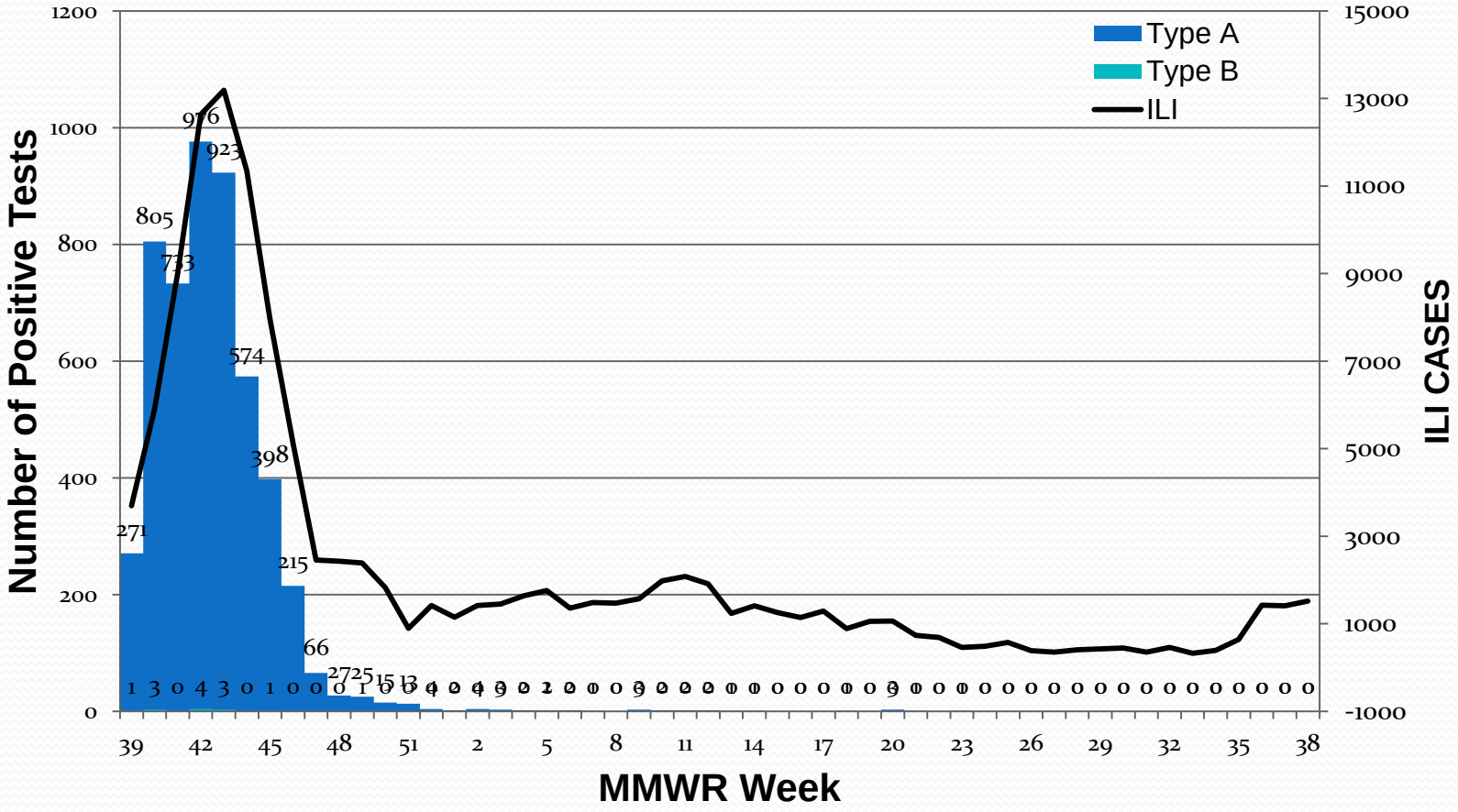
Percent of Visits for Influenza-like Illness (ILI) Reported by West Virginia Sentinel Providers, 2010-2011



West Virginia Hospital and Referral Laboratory Data

- This graph is useful for assessing changes in influenza activity and type of circulating viruses.
- This information, together with information on influenza A subtype can be useful in guiding empiric therapy for influenza-like illness.
- This graph is also useful for pinpointing the first identification of influenza in the state of West Virginia.

Hospital and Referral Laboratory Influenza Test Results and Cases of Influenza-Like Illness (ILI) by MMWR Week of Report, West Virginia, 2009-2010



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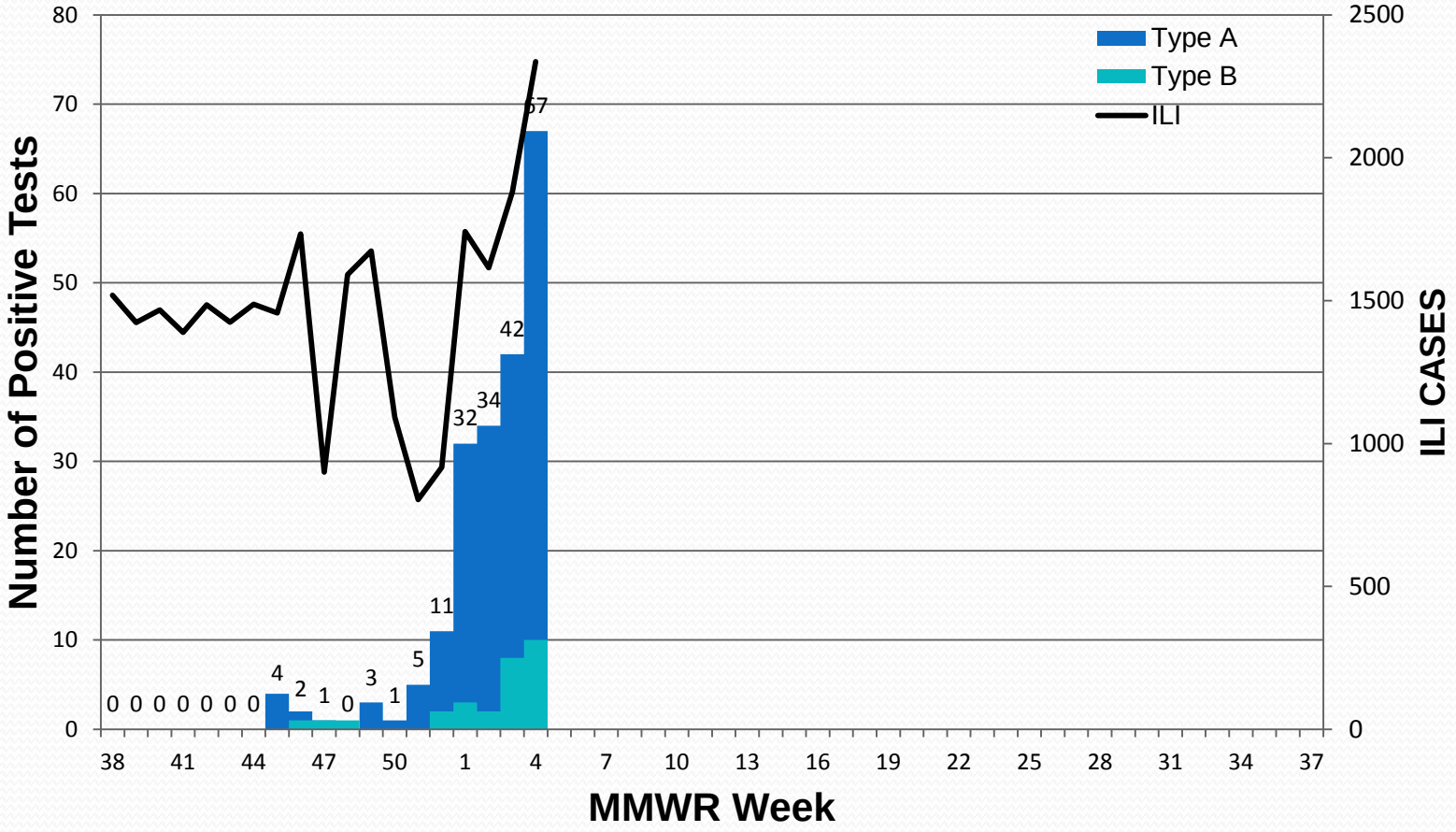
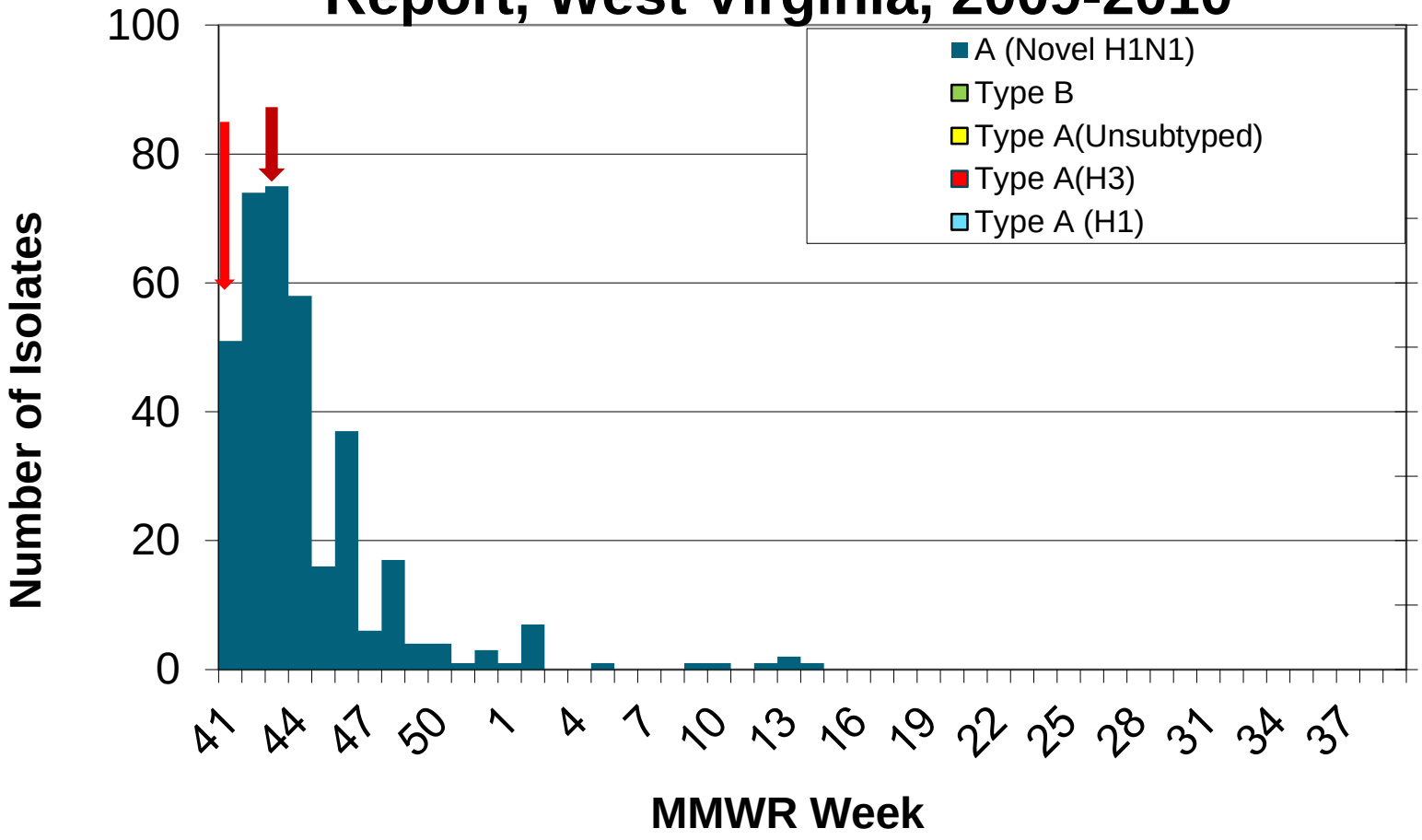
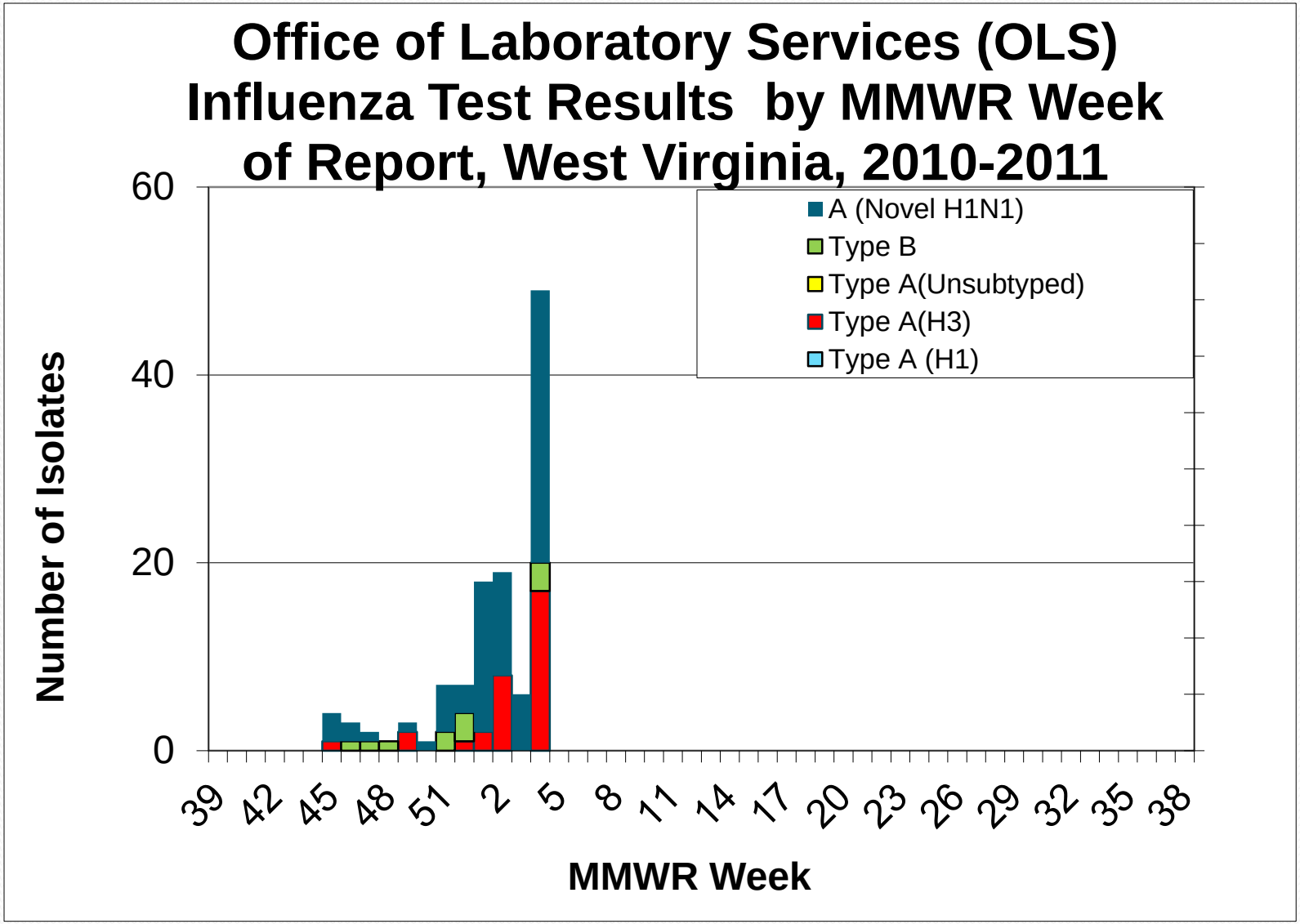


Office of Laboratory Services Data

- The OLS accepts influenza surveillance specimens from the following sources:
  - 8-10 specimens per influenza outbreak;
  - 5 influenza A isolates per week from hospitals; and
  - 2 specimens per week from sentinel providers.
- OLS can type and subtype influenza isolates; thus this data is useful for identifying which influenza strains are currently circulating in West Virginia.

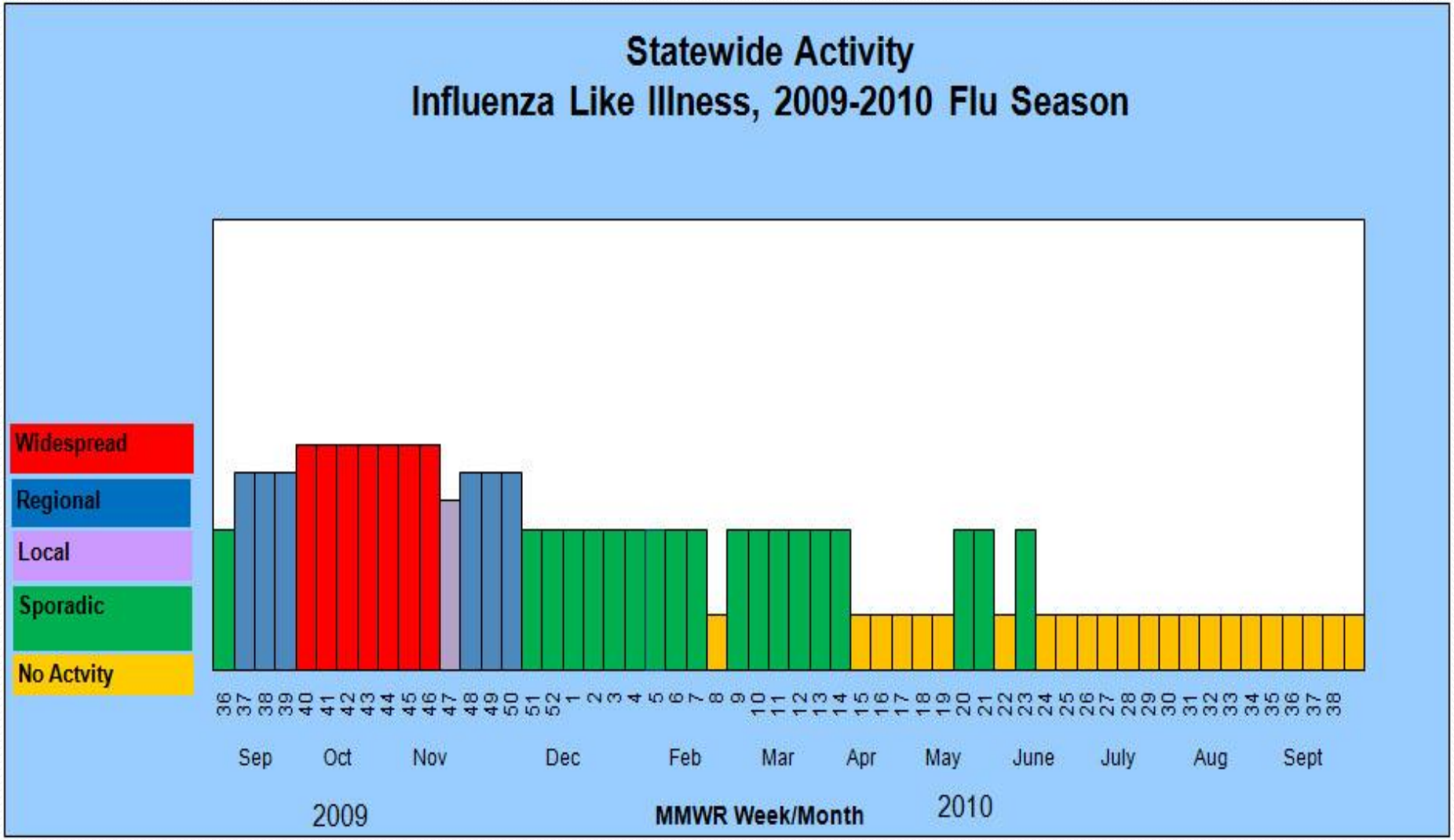
Office of Laboratory Services (OLS) Influenza Test Results by MMWR Week of Report, West Virginia, 2009-2010



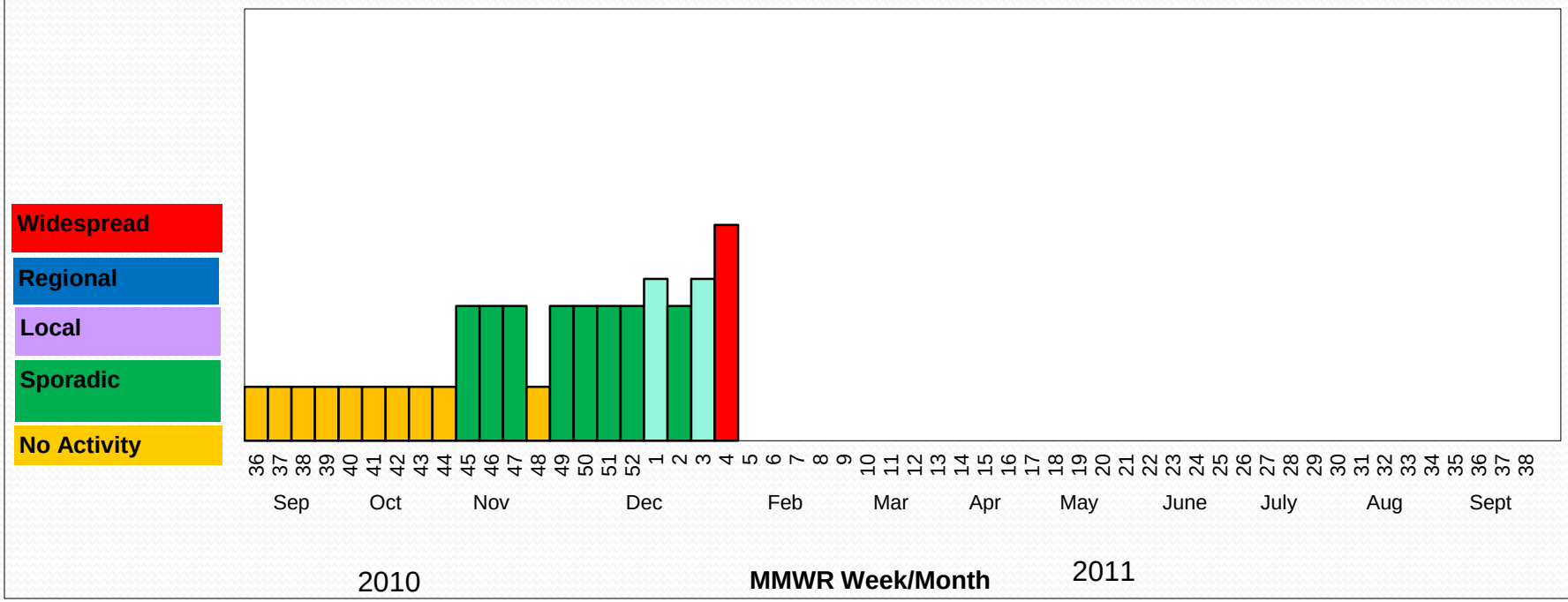

Office of Laboratory Services (OLS)
Influenza Test Results by MMWR Week
of Report, West Virginia, 2010-2011
Number of Isolates
60
40
20
0
A (Novel H1N1)
Type B
Type A(Unsubtyped)
Type A(H3)
Type A (H1)
39
42
45
48
51
2
5
8
11
14
17
20
23
26
29
32
35
38
MMWR Week

Influenza Activity in West Virginia

- West Virginia reports the level of "Influenza Activity" to the Centers for Disease Control and Prevention every week, using this national definition:
  - No Activity
  - Sporadic
  - Local: ↑ number outbreaks or ILI & lab confirmed influenza in a single region
  - Regional: ↑ number outbreaks or ILI & lab confirmed influenza in 2 but less than half of the regions
  - Widespread: ↑ number outbreaks or ILI & lab confirmed influenza in at least half of the regions

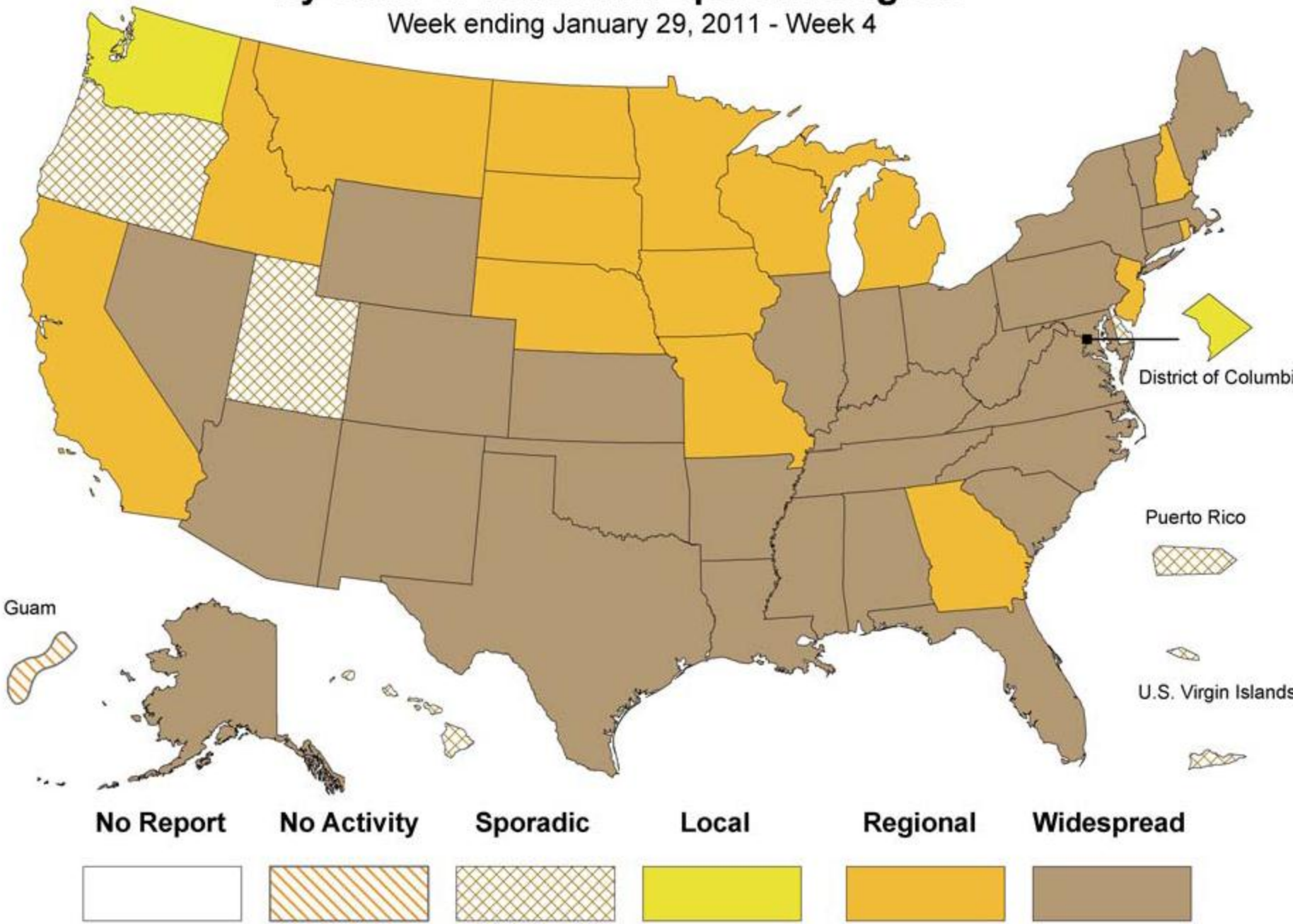

Statewide Activity
Influenza Like Illness, 2009-2010 Flu Season
Widespread
Regional
Local
Sporadic
No Actvity
36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38
Sep Oct Nov Dec Feb Mar Apr May June July Aug Sept
2009
MMWR Week/Month
2010

Statewide Activity
Influenza Like Illness, 2010-2011 Flu Season



Weekly Influenza Activity Estimates Reported by State & Territorial Epidemiologists*

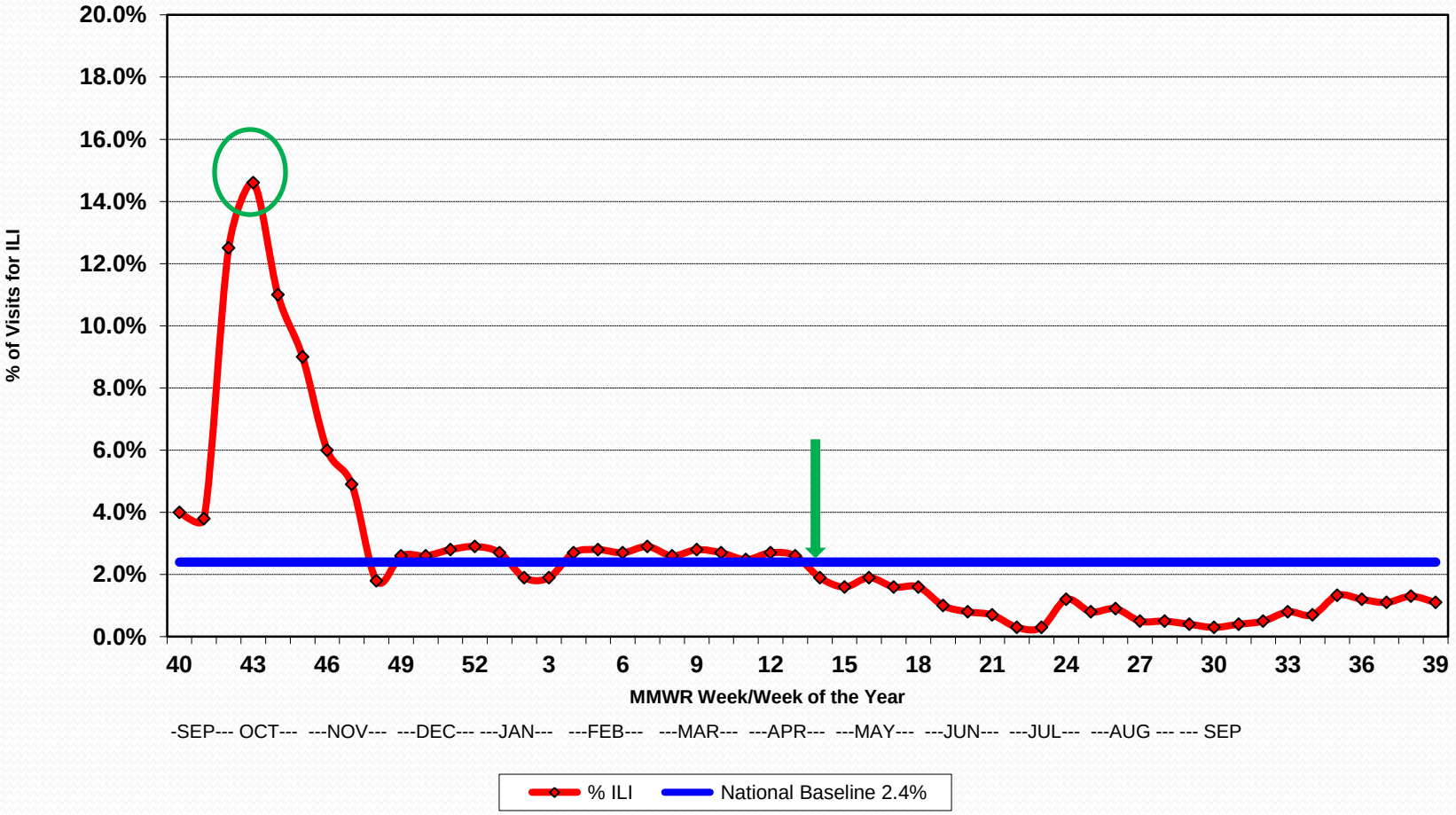
Week ending January 29, 2011 - Week 4



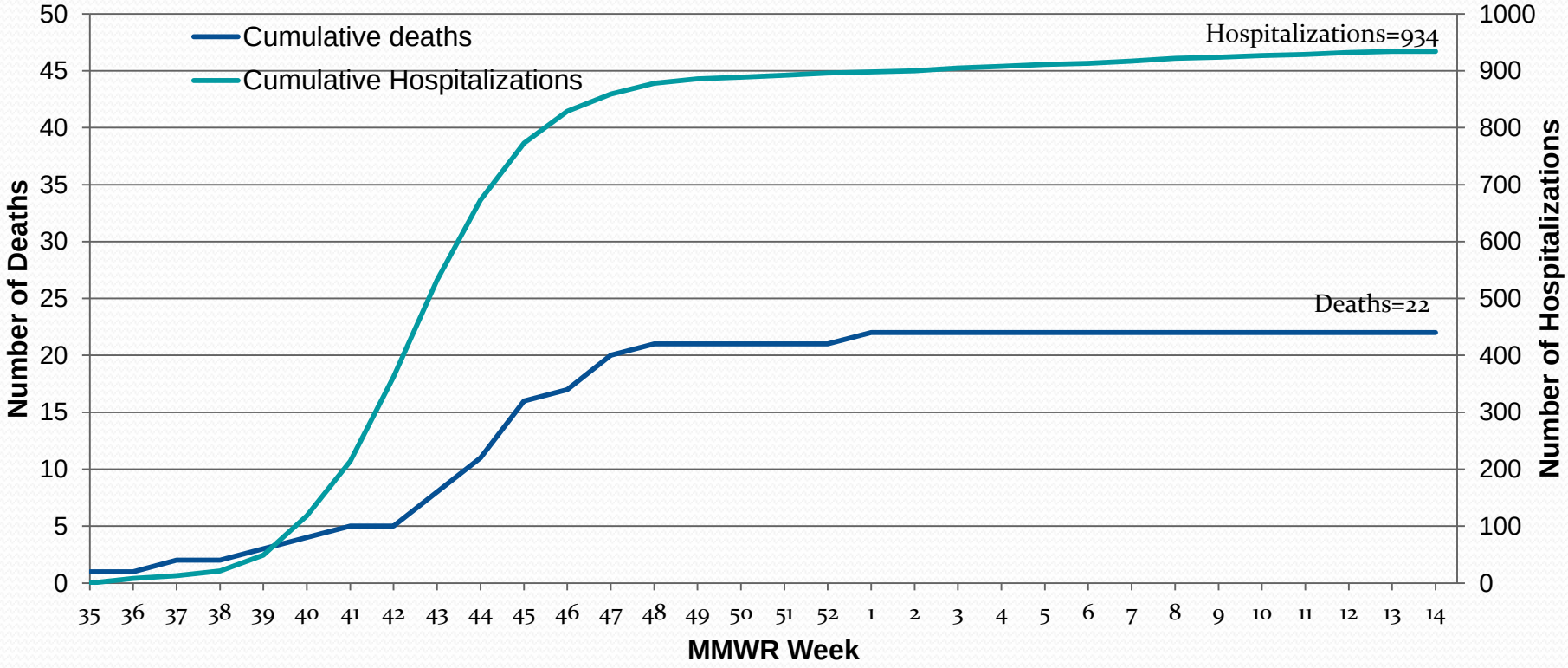
Review of 2009-2010 Influenza Season

- Cultures were Novel type H1N1
- Peaked in the month of October
- By December 2009 , ILI was near baseline
- April was the first drop below the national baseline of 2.4% ILI visits

Percent of Visits for Influenza-like Illness (ILI) Reported by West Virginia Sentinel Providers, 2009-2010



Cumulative Influenza Associated Hospitalizations and Deaths, West Virginia, 2009-2010 Influenza Season



Influenza 101

Obtaining and Retaining Sentinel Providers

Sentinel Surveillance

- A surveillance system that uses a prearranged sample of sources (e.g., physicians, hospitals, or clinics) who have agreed to report all cases of one or more notifiable diseases

Role of Surveillance

- Provides information on level of influenza activity in the state
- Provides information on the strains circulating not only in the state but in counties and regions
- Provides information for vaccine manufacturers

Sources of Laboratory Data

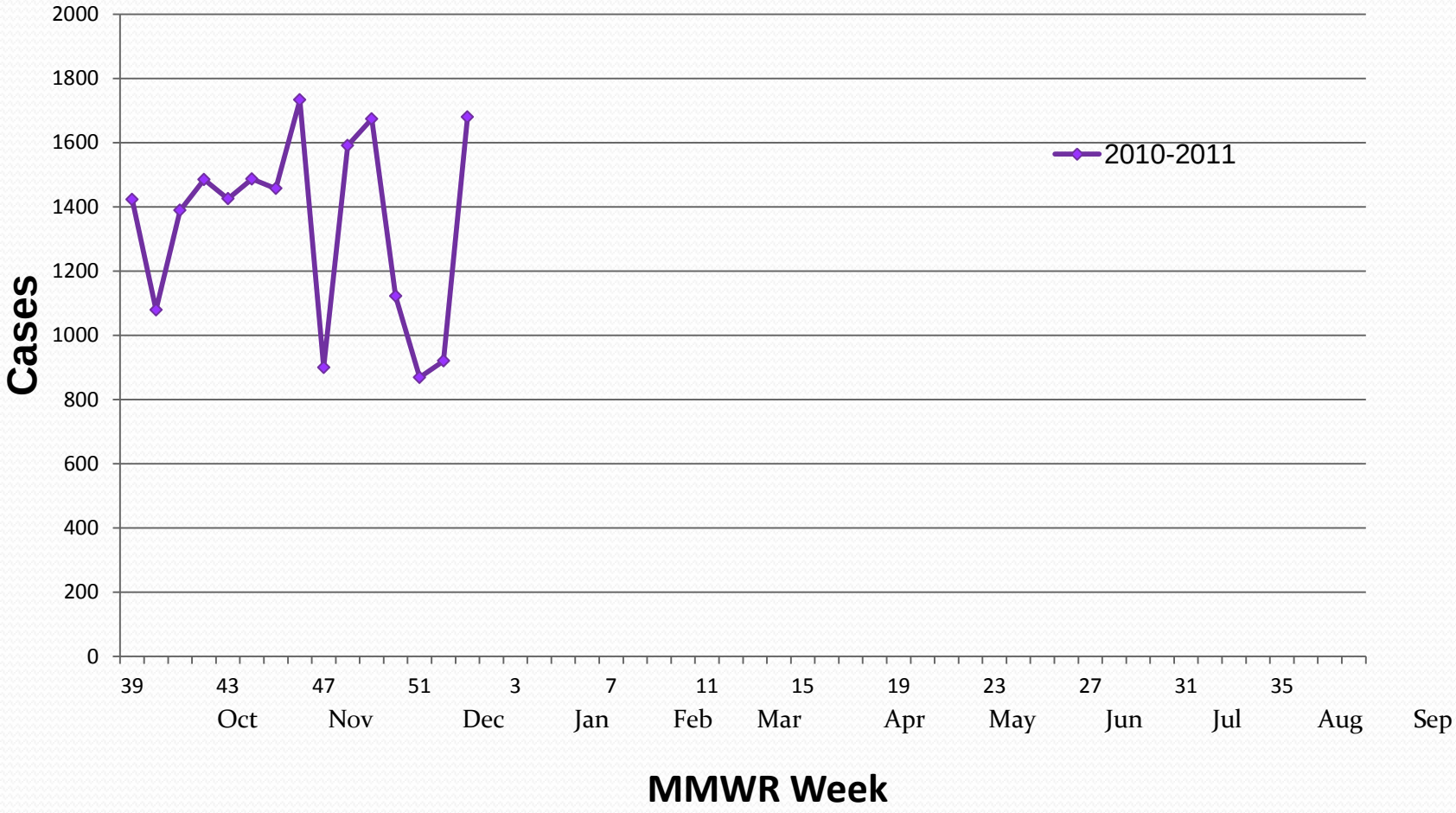
Labs Report to CDC	Labs Report Influenza Type by : DFA/IFA/Culture	Labs that submit isolates	Labs that subtype
CAMC	CAMC	CAMC	OLS
OLS	Cabell/Huntington	Cabell/Huntington	
	St Mary's	St Mary's	
	Thomas Memorial	Thomas Memorial	
	WVU	WVU	
	Lab Corp	Other hospitals	
	Quest		
	Outside of State		

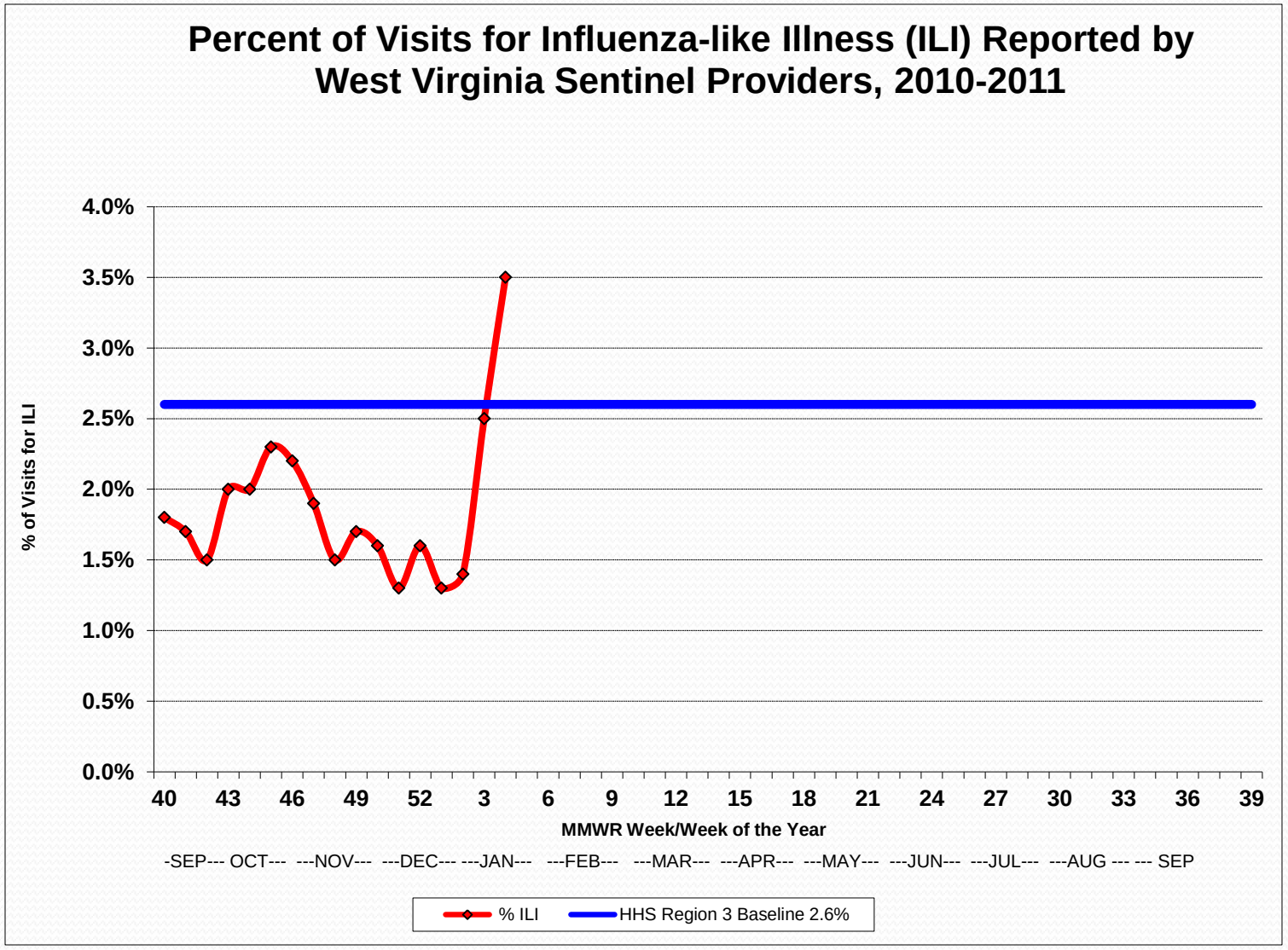
Sources of ILI Data

- Local Health Departments
  - Schools
  - Providers
  - Other Sources
    - Prisons
    - Nursing homes
    - Hospitals
    - College health centers
    - Large businesses
- Sentinel Providers
  - Public Health Clinic
  - Private Practice
  - Hospital
  - Emergency Room
  - Urgent Care
  - Student Health
  - Other

REPORTED INFLUENZA-LIKE ILLNESS

West Virginia 2010-2011




Percent of Visits for Influenza-like Illness (ILI) Reported by West Virginia Sentinel Providers, 2010-2011
% of Visits for ILI
4.0%
3.5%
3.0%
2.5%
2.0%
1.5%
1.0%
0.5%
0.0%
40 43 46 49 52 3 6 9 12 15 18 21 24 27 30 33 36 39
MMWR Week/Week of the Year
-SEP--- OCT--- ---NOV--- ---DEC--- ---JAN--- ---FEB--- ---MAR--- ---APR--- ---MAY--- ---JUN--- ---JUL--- ---AUG --- --- SEP
% ILI
HHS Region 3 Baseline 2.6%

Sentinel Provider Data

- Using ILI case definition

Fever ≥ 100° F and cough and/or sore throat

(in absence of known cause other than influenza)

- Participating providers are strongly encouraged to report to CDC throughout the year
- The preferred way to report data is through ILI-Net
- Reports should be submitted by noon on Tuesday of the week following the reporting period

Sentinel Provider Surveillance

- There are 55 counties in West Virginia
- There are 74 sentinel providers
- Only 3 counties lack a sentinel provider
- Several counties have more than one sentinel provider:
  - 2 Providers: Boone, Grant, Harrison, Marshall, Pocahontas, Summers, Taylor, Wood
  - 3 Providers: Fayette, Logan, Greenbrier, Monongalia
  - 4 Providers: Jefferson, Marion

Sentinel Provider Surveillance

As of February 1st, of those 74 enrolled Influenza Sentinel Providers in West Virginia

- 46 have reported at least once in the 2010-2011 influenza season
- 6 report 50-75% of the time
- 18 report over 80-95% of the time
- 9 report 100% of the time

100%

- Raleigh County Health Department
- Fairmont General Hospital
- Roane General Hospital Emergency Department
- Mercer Health Right
- Primary Health Care Associates
- Monroe Health Center
- Grant Memorial ED
- Potomac Valley Hospital
- Robert C. Byrd Health Center

80-95%

- William Mercer, M.D.
- West Milford Health Center
- Medical Center of Taylor County
- Dr. Kevin McCann
- Hope Medical Center
- David W. Avery, M.D.
- Preston Memorial Hospital Emergency Department
- Infection Control Office
- Morad Hughes Health Center
- The Myers Clinic
- Primary Care Systems, Inc.
- Shenandoah Community Health Center
- S. K. Shammaa, M.D.
- Montgomery General Hospital Emergency Dept
- E.A. Hawse Health Care
- Minnie Hamilton Health System
- Mid-Ohio Valley Health Department
- West Virginia University Urgent Care
- Summers County Health Department

At least 50%

- Monongahela Valley Association of Health Centers
- The Meyers Clinic
- Robert C Byrd Clinic
- Tygart Valley Total Care Clinic
- Nancy Lares, MD

0%

- Hampshire Memorial Hospital
- Browning Family Practice
- Glendale Medicine and Pediatrics
- William Douglas Given, M.D.
- Dr. Deborah Mowe
- MVA Fairmont Clinic
- Frank Cuda, FNP
- Morgantown Internal Medicine Group
- Harpers Ferry Family Medicine
- Access Health Fayette Clinic
- University Pediatrics
- Family Care
- Summersville Memorial Hospital Emergency Department
- Ulysses Agas, MD Family Care
- Lincoln Primary Care Center
- Camden Clark Memorial Hospital
- North Fayette Family Health Center
- Robert Jones, MD
- Raleigh Boone Medical Center
- Joseph DePetro, MD
- Premier Medical Group Lab
- Eden Family Practice
- Rainelle Medical Center
- Hahn Medical Inc.
- Family Healthcare Associates, Inc.
- Southern West Virginia Health System
- Cameron Community Health Center
- EZ Care Walk In Medical Clinic

Late Reporting

Date CDC Website Checked	Number reporting	Total ILI	Total Patients	Percent ILI
12/6/2010	19	127	5700	2.22
12/7/2010	20	127	6595	1.92
12/8/2010	23	137	6853	1.99
12/22/2010	31	149	8227	1.81
1/5/2011	33	149	9132	1.63

The reporting period for MMWR week 48 was from 11/28/2010 – 12/4/2010
ILI data was due the following Monday December 6th
Threshold is 2.6%

Influenza 101

Influenza for the 2010-2011 Season:

Vaccine and Recommendations

Current Influenza Vaccine

- A/California/2009 H1N1,
- A/Perth/2009 H3N2 and
- B/Brisbane/2008-like antigens

Changes and updates in the 2010 ACIP Recommendations

- Routine influenza vaccine is recommended for **ALL** persons 6 months and older

- As recommended previously, all children 6 months to 8 years who receive a seasonal vaccine for the first time should receive two doses

Who should get the annual flu vaccine?

- High risk groups
  - Pregnant women
  - Children younger than 5, especially those younger than 2
  - People 50 and over
  - Any age with chronic medical conditions
  - Those living in nursing homes and LTEC facilities
  - Those that live with or care for those with high risk for complications
- For children younger than 6 months it is recommended that household contacts, caregivers get vaccinated
- Vaccination of pregnant women may confer protect to those infants less than 6 months and protect women during pregnancy and post partum period

Influenza 101

“I have 20 sick nursing home residents, what do I do?!!”

Outbreak Definition

- Two or more cases of ILI within 72 hours in a nursing home should prompt testing.
- One positive laboratory test for influenza in conjunction with other compatible illness on the unit indicates an outbreak is occurring

Is it an outbreak?

- Begin a line listing of ill persons
  - Staff
  - Residents
    - Location of cases is very helpful in determining cohorting
- Complete for the duration of the outbreak
  - No new cases for 7 days

Outbreak

- Report the outbreak to your local health department **and stay in touch throughout the outbreak**
- Collect specimens
  - 8-10 nasopharyngeal swab specimens from recently ill (within 72 hours of illness onset) persons
  - Before the start of antivirals or antibiotics if possible

Chemoprophylaxis

- Begin antiviral prophylaxis for all residents
  - Should continue for 14 days or for 7 days after the onset of symptoms in the last person infected—whichever is longer
  - http://www.cdc.gov/flu/professionals/antivirals/summary-clinicians.htm
- Offer vaccination to all unvaccinated staff and residents if possible
- Unvaccinated staff should receive antiviral prophylaxis
  - If inactivated vaccine is administered to staff, antiviral chemoprophylaxis can generally be stopped 2 weeks after vaccination

Outbreak—Nursing Homes

- Encourage infection control practices (hand washing and cough etiquette)
- Control visitors and non-essential personnel
- Follow droplet precautions (discourage movement within the building, group residents and staff on units with known or suspected flu cases)
- Guidelines on DIDE website
  - http://www.wvidep.org/Portals/31/PDFs/IDEP/influenza/influenza%20outbreak%20toolkit_nursing%20home_Oct%202010.pdf

Nursing Home Line List

Gender	Location	Onset	Highest Temp	Sore Throat	Cough	Labs	Vaccine
F	100 N	11/20	100.1	N	Y	N	Y
F	200 S	12/19	99.1	N	Y	(+)	Y
M	200 S	12/18	100.5	Y	Y	N	Y
M	200 N	12/5	101.9	Y	Y		Y
F	200 N	12/15	99.2	N	Y	(+)	Y
F	100 N	12/27	100.2	N	Y		Y
F	200 S	12/21	98.1	N	Y	(-)	Y

Outbreak

--“Half of the first grade is missing from school”

--“A provider in my area mentioned that he has seen at least 4 kids with positive rapid tests for Influenza B”

--“I think these two may be connected”

Definition:

- Increased absenteeism in association with ILI and/or laboratory confirmed influenza (schools, work place)
- Three or more cases of ILI in a congregate setting within a 3-day period (daycare, sports team)
- Two or more lab confirmed cases of influenza within a 3-day period in a congregate setting (classroom, daycare)

How to confirm

- Schools or workplaces with high absenteeism
  - Call a sample of 15-20 absentees to estimate the proportion of absentees with ILI.
  - Document with a line listing or questionnaire
- In smaller congregate settings, a line list is a valuable tool to establish the existence of an outbreak and confirm the diagnosis.

Outbreak

- Implement appropriate control measures
- Report the outbreak immediately to the local health department and **stay in touch throughout outbreak**
- Collect 8-10 nasopharyngeal swabs from the recently ill (less than 72 hours)

Following the outbreak

- Follow the course of the outbreak to assure control measures are adequate
- For large workplace or school outbreaks follow absentee rates (not individual cases) AFTER existence of outbreak and diagnosis are established
- For smaller settings the line list is valuable in tracking the progress of the outbreak

Controlling the spread

- Ill persons should be isolated until sent home.
- Ill persons should stay home until 24 hours after fever has gone without the use of a fever-reducing medicine
- Wash hands frequently
- Practice cough etiquette.

CDC guidelines

- Share CDC guidelines specific for the situation:
  - Schools and daycares: http://www.cdc.gov/flu/school
  - Workplaces: http://www.cdc.gov/flu/
  - General: http://www.cdc.gov/flu

Line list

- Fever ≥ 100 °F and cough or sore throat without another identified cause.

Example	Highest temperature	Cough?	Sore throat?	ILI Case Status
1	99.5 ° F	yes	yes	Not a case
2	100.5	yes	no	Case
3	101.0	no	no	Not a case
4	101.0	no	yes	Case

Line List Elementary School

Age	Gender	Onset	Well	Fever	Highest Temp	Cough	Sore throat	Lab test	Result
5	F	1/22/11	1/31/11	Yes	103	Yes	No	No	
5	F	1/24/11	1/31/11	No		Yes	No		
8	M	1/23/11		Yes	103	Yes	No	No	
8	F	1/24/11		Yes		Yes	Yes	Yes	(+) B
7	F	1/23/11		Yes	103	Yes	Yes	Yes	(+) B
6	M	1/20/11	1/24/11	Yes	104	No	No	No	
6	M	1/18/11	1/30/11	Yes	101.9	Yes	Yes	Yes	
7	M	1/21/11	1/31/11	Yes	103.8	Yes	Yes	Yes	(+) B
5	F	1/22/11	1/27/11	Yes	101	Yes	Yes	No	
6	M	1/20/11	1/24/11	No		No	No	No	

Influenza 101

Office of laboratory Services and Their Role in Influenza Surveillance and Outbreaks

Influenza specimens

- Testing is for surveillance purposes rather than diagnostic purposes
- As part of surveillance they will process 5 positive influenza A samples per week from surveillance labs
- Will process 2 positive influenza A samples per week from sentinel providers
- As part of an outbreak investigation 8-10 nasopharyngeal swabs are to be collected from the recently ill (>72 hours of illness onset)

Specimens

- Nasopharyngeal swabs are the specimen of choice
- Other acceptable specimens
  - Nasal washes and swabs
  - Tracheal aspirates
  - Nasopharyngeal washes
- Samples should be sent to OLS on cold packs
  - 1-3 days is optimal
- Samples which cannot be shipped within 72 hours after collection must be frozen at -80°C and shipped to OLS with dry ice for overnight delivery.

Unsatisfactory Specimens:

- **OLS will not perform testing on specimens that meet any of the following criteria:**
  - Specimens received more than 72 hours after collection
    - Specimens received 5 days after collection will be considered compromised.
  - Specimens from throat cultures with swabs containing calcium alginate and wooden shafts.
  - Specimens not shipped on cold packs.
  - Specimens without proper information on laboratory submission form.

Influenza Testing Kits

- Check your media for expiration date
  - Shelf life of 1 year
- If media is expired, retain the remainder of the kit and request new media from OLS
- Request additional flu kits as needed
- When a specimen is shipped to OLS a replacement kit will be sent out
- Both forms can be found on the DIDE website under influenza and on the OLS website

Influenza

In conclusion

Influenza reporting

- Influenza-like Illness:
  Within 1 week to local health department (numerical totals only)
- Influenza-associated pediatric mortality (age <18 years):
  Within 1 week to local health department
- Outbreaks:
  Immediately to local health departments
- Novel influenza infection, human or animal:
  Immediately to the local health department

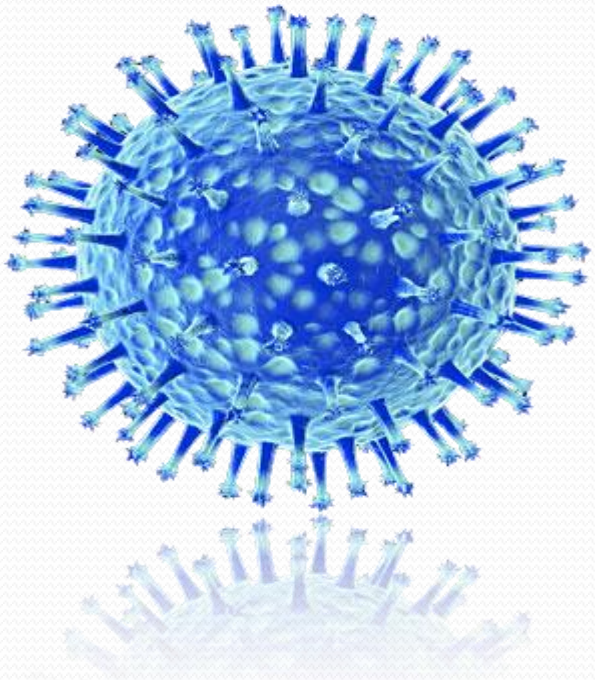
Influenza Reporting

- Continue to collect data on:
  - Influenza-associated ICU admissions and death in pregnant females
  - Area provider ILI information

Local Health Departments

- Continue to submit the aggregate numbers by close of business on Monday
- Check in with your sentinel providers
  - See if they have any questions
  - Check on their testing supplies
  - With those that aren't reporting, ask if there is anything that they need to continue reporting
- Remember that "0" is still a number and should be reported
- Be on the look out for new sources of reporting

Thank you



Questions ?